In Situ Groundwater Remediation, Tay Van Car Wash
Redding, Shasta County
Fact Sheet, April 2021

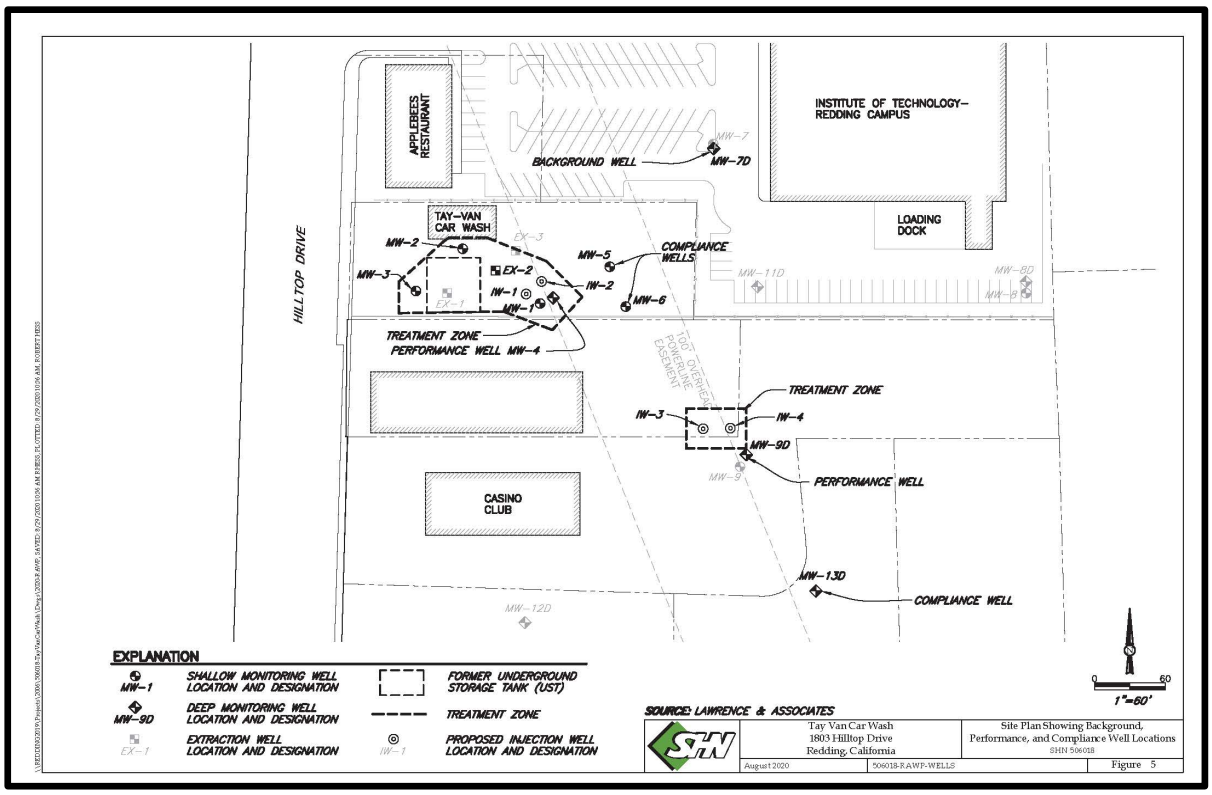
The Central Valley Regional Water Quality Control Board (Central Valley Water Board) is providing this Fact Sheet to parties interested in site cleanup at the Tay Van Car Wash, 1803 Hilltop Drive, Redding, California (Site). Tay Van, Inc. (Discharger) proposes in-situ chemical oxidation (ISCO) via injection of sodium persulfate (PersulfOx®) into groundwater underlying the Site under General Order R5-2015-0012. This Fact Sheet summarizes site investigation and cleanup to date and the proposed activities.

Background

The Site is the location of a former commercial petroleum fueling facility and currently developed as a car wash. An unauthorized release was reported in April 1999 following the removal of four gasoline USTs. Subsequent investigations identified petroleum related contamination in soil and groundwater to depths of 50 feet below ground surface (bgs). The Site has undergone multiple soil removal actions. Approximately 900 cubic yards of soil were over-excavated to a depth of approximately 15 feet bgs in May 1999. Approximately 1,000 cubic yards of impacted soil were over-excavated in April 2002. Approximately 550 cubic yards of impacted soil were over-excavated to a depth of about 10 feet bgs in January 2004. All excavated soil was disposed off-site.

High vacuum dual phase extraction was operated in April 2014, which removed an estimated 470 pounds of vapor-phase petroleum hydrocarbons and 17,010 gallons of contaminated water. Two additional site investigations were conducted in 2015. In June 2015, three deep monitoring wells were installed and in December 2015 12 laser-induced fluorescence borings were installed to delineate the presence of free product. In January and March 2018, ISCO was conducted by injecting a water, sodium persulfate, and sodium hydroxide solution into 43 borings. Routine groundwater monitoring resumed in 2019 and indicated elevated methyl tert butyl ether (MTBE) remains at depths of approximately 35 to 50 feet bgs in onsite and offsite wells.

In January 2020, Central Valley Water Board staff directed the Discharger to evaluate the technical effectiveness of several remedial technologies that would be effective in reducing MTBE concentrations in wells MW-4 (onsite) and MW-9D (offsite). The selected remedial alternative is ISCO using PersulfOx®. The Discharger submitted a Remedial Action Work Plan (RAWP) to the Central Valley Water Board in August 2020 and submitted a RAWP Addendum in January 2021. Central Valley Water Board staff concurred with the RAWP Addendum in March 2021.



Site Plan Showing Treatment Zone and Well Locations

What work has been completed?
The Discharger has contracted SHN Engineers & Geologists (SHN) to perform the ISCO using PersulfOx®. Baseline monitoring was performed in June 2020 and the results were submitted to Central Valley Water Board staff. In February 2021, the Discharger submitted the General Order permitting package.

What are the next steps?
Prior to conducting PersulfOx® injection, SHN will install four injection wells to approximately 50 feet bgs with screened intervals between 35 and 50 feet bgs. Two of these injection wells (IW-1 and IW-2) will be upgradient of MW-4 and the other two injection wells (IW-3 and IW-4) will be upgradient of MW-9D.

Approximately 13,370 gallons of PersulfOx® with water will be injected in eight wells, including four existing shallow zone wells MW-1, MW-2, MW-3 and EX-2 and the four proposed deeper injection wells, during two separate events 30 days apart. A solution of 15 percent PersulfOx® and 85 percent water will be injected into the four shallow zone wells at a rate of approximately 55 gallons of solution (approximately 50 pounds of PersulfOx®) per vertical foot over the interval of 10 to 25 feet bgs. A solution of 10 percent PersulfOx® and 90 percent water will be injected into the deeper zone injection wells at a rate of approximately 56 gallons of solution (approximately 50 pounds of PersulfOx®) per vertical foot over the interval of 35 to 50 feet bgs.

Monitoring and reporting during ISCO using PersulfOx® will be conducted in accordance with Monitoring and Reporting Program (MRP) R5-2015-0012-XXXX. Constituents of concern (COCs) including MTBE, benzene, toluene, ethylbenzene, total

xylenes, total petroleum hydrocarbons as gasoline, sodium, sulfate, total dissolved solids, and chromium VI will be assessed in monitoring wells prior to PersulfOx® injection. COCs will be sampled and analyzed prior to injection, two weeks after the first injection, and one and three months post-remediation. Groundwater parameters including groundwater elevation, free product presence/absence, oxidation reduction potential, electrical conductivity, dissolved oxygen, pH and temperature will be assessed in monitoring wells prior to PersulfOx® injection. Subsequently, these parameters will be sampled and analyzed after one month and three months post-remediation.

The NOI submitted as part of the application package, included a contingency plan, which states that if parameters of interest show a sustained significant increase over background values, or if additional water quality objectives are exceeded, a confirmation sample will be collected within 10 days of receipt of the laboratory analytical results. If the exceedance is confirmed in the confirmation sample, the Discharger will notify Central Valley Water Board staff in writing within 10 days of receipt of the confirmation sample laboratory analytical result.

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To review project documents, please call (530) 224-4845 to make an appointment or visit GeoTracker at: (http://geotracker.waterboards.ca.gov).